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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,242	01/23/2002	Bo Chang	CYPR-PM01007	7803

7590 09/30/2003
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EXAMINER

LAIR, DONALD M

ART UNIT PAPER NUMBER

2858

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,242

Applicant(s)

CHANG ET AL.

Examiner

Donald M. Lair

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 25-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 25-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4 – 8, 25, 28 – 32 and 35 – 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Abel et al. (US-4,812,742).

3. In regards to Claims 1 and 25, Abel et al. disclose a method for testing wire bonds in an integrated circuit package comprising bonding an integrated circuit silicon die to a package substrate, forming a wire connection between a circuit contact pad in the integrated circuit silicon die and a lead contact pad in the package substrate, and testing the wire connection for detection of “non-stick failure” with a testing device, wherein the silicon substrate of the integrated circuit provides electrical continuity for the non-stick detection between the circuit contact pad and a dedicated contact pad in the package substrate which is electrically coupled to the testing device (Column 2, lines 5 – 29).

4. In regards to Claims 4 and 28, Abel et al. disclose a method comprising all the elements described above, wherein each of the lead contact pads in the package substrate are electrically isolated from other lead contact pads in the package substrate (Column 2, lines 8 – 10).

5. In regards to Claims 5, 29 and 35, Abel et al. disclose a method comprising all the elements described above, wherein bonding the integrated circuit silicon die provides electrical

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continuity between the integrated circuit silicon die and the dedicated pads in the package substrate (Column 2, lines 15 – 25).

6. In regards to Claims 6, 7, 30, 31, 36 and 37, Abel et al. disclose a method comprising all the elements described above, wherein testing the wire connections for non-stick failure comprises testing the wire connection for continuity and shorts through a circuit contact pad on the integrated circuit die and a dedicated contact pad in the package substrate (Column 2, lines 15 – 25).

7. In regards to Claim 8, Abel et al. disclose a method comprising all the elements described above, wherein the method is clearly designed to be performed recursively on a plurality of wire connections (Column 2, lines 5 – 25).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 3, 26, 27, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abel et al. in view of Brooks et al. (US-6,326,244).

10. In regards to Claims 2, 3, 26, 27, 33 and 34, Abel et al. disclose the method of testing described above, but fail to teach how the integrated circuit die is bonded to the package substrate.

11. Brooks et al. teach using electrically non-conductive, thermally conductive epoxy to bond the integrated circuit die to the package substrate (Column 7, lines 21 – 35).

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Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method disclosed by Abel et al. by using an electrically non-conductive, thermally conductive epoxy to bond the integrated circuit die to the package substrate, as taught by Brooks et al., for the purpose of protecting the package components.

Response to Arguments

12. Applicant's arguments filed with Amendment A on 08/21/03 have been fully considered but they are not persuasive.

13. In regards to Claim 1, the Applicant argues that "The claimed embodiment of the present invention does not require a separate 'test region' nor does it require an array of the test pins because it enables and claims the use of the existing silicon substrate for the requisite continuity." The Applicant appears to be asserting that the application is allowable over Abel et al. because Abel et al. comprises features not included in the invention of this application. If the Applicant is asserting that Abel's inclusion of the extra features teaches away from the claim limitations then, the Examiner respectfully submits that the claim language is not nearly as narrow as the Applicant is suggesting in his arguments. The MPEP §2106 states that "Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). See also *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). The disclosure of Abel et al., Column 2, lines 3 – 29, clearly reads on "wherein the silicon substrate of the integrated circuit provides electrical continuity for said non-stick detection between said circuit contact pad

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in said package substrate which is electrically coupled to said testing device” when the ‘broadest reasonable interpretation’ rule is applied. For instance, the silicon substrate comprises contacts which are used to make an electrical connection to the package and is coupled to a testing device, thus Abel et al. teach a silicon substrate that provides electrical continuity to the package and test device.

14. In regards to Claim 5, the fact that Abel et al. teaches features not taught by the present application does not make the present application allowable over Abel et al. Further, Claim 5 reads as follows:

A method as described in Claim 1, wherein said bonding said integrated circuit silicon die provides electrical continuity between said integrated circuit silicon die and said dedicated pad in said package substrate.

This language does not *necessarily* teach the feature of “obviating the need for the separate ‘test portion’ taught in the cited reference.

15. In regards to the Claim 2 and 3, the claim language states only ‘conductive epoxy’ not ‘electrically conductive epoxy’ and further the language is not explicit in regards to the way the electrical connection is made, so the use of electrically non-conductive, thermally conductive meets the limitations for both ‘conductive epoxy’ and providing a means for an electrical connection between the substrate and the package. Claim 1 of the present application in fact specifies a ‘wire connection’.

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

17. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

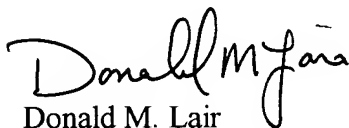
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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald M. Lair whose telephone number is (703) 305-4450. The examiner can normally be reached on Monday - Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1436.



Donald M. Lair
Patent Examiner
Art Unit 2858
September 25, 2003



N. Le
Supervisory Patent Examiner
Technology Center 2800